



# Il linguaggio Python: Nozioni di base

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# Parte 1: Introduzione a Python



Le origini del linguaggio python



Cratteristiche peculiari di python



scaricare ed installare Python

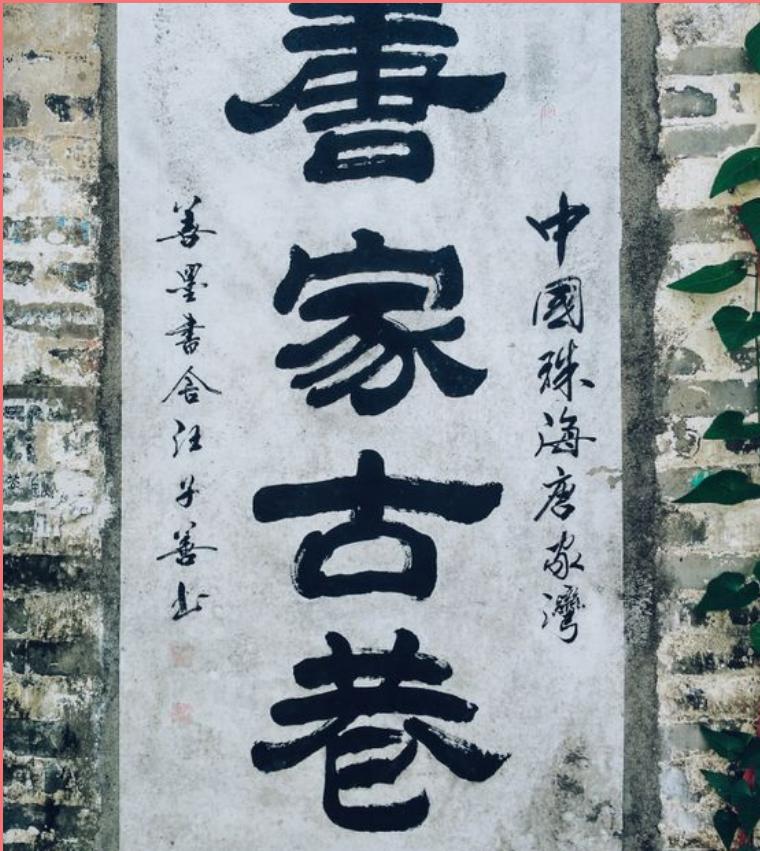


Il prompt e la shell di di python



gli IDE di python

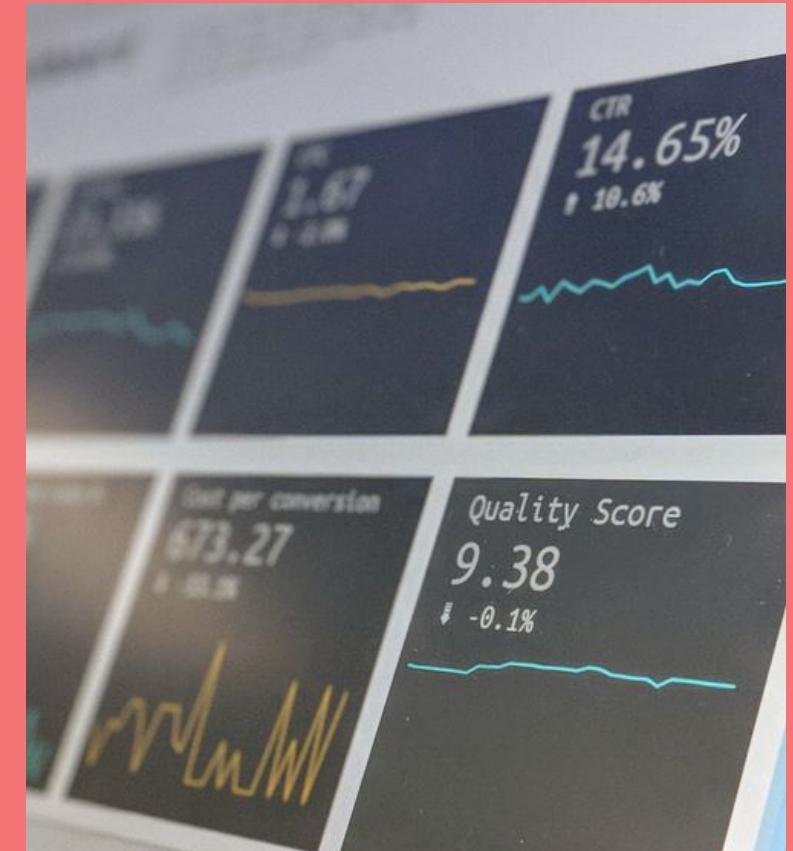
# Parte 2: Il linguaggio



La sintassi di python



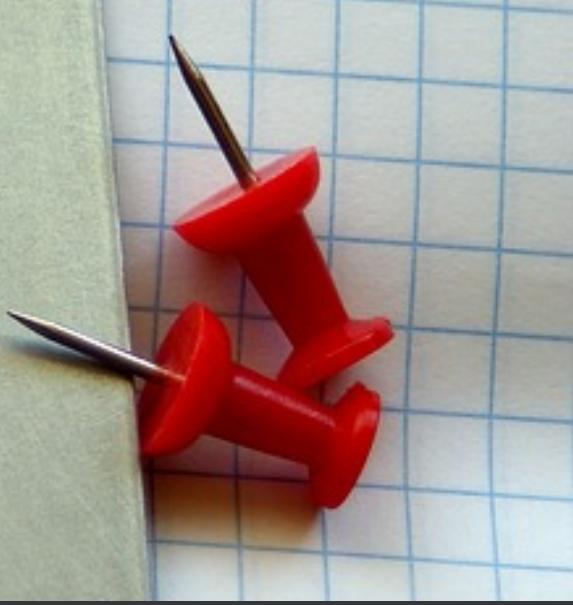
File, Moduli e Librerie



Statistica in python



# BONUS



# Parte 1

# Introduzione



A close-up portrait of Guido Van Rossum, a man with light brown hair and a full grey beard, wearing dark-rimmed glasses and a light-colored shirt.

# Le Origini

Guido Van Rossum - Dittatore benevolo a Vita

- Nato il 31 gennaio 1965 nei Paesi Bassi
- Laurea in Matematica e Computer Science nel 1982 @ Università di Amsterdam
- Aveva bisogno di un linguaggio di programmazione per un progetto sul quale stava lavorando
- Crea python nel 1989 come “progetto natalizio” seguendo le regole del cd ABC (All Basic Code)
- Java, javaScript, PHP, Ruby nasceranno nel 1995
- Il nome python deriva dalla serie TV “The Monty Python’s Flying Circus”





# Caratteristiche peculiari di Python

- 1 Ad alto livello
- 2 Interpretato
- 3 Multi-paradigma: object-oriented, programmazione strutturata e caratteristiche di programmazione funzionale.
- 4 Sintassi semplice
- 5 Molte librerie a disposizione
- 6 Dinamicità: es. Tipi riconosciuti automaticamente dall'interprete
- 7 ...



# Scaricare ed installare python

<https://www.python.org/downloads/>



The screenshot shows the Python Downloads page. At the top, there is a navigation bar with links: About, Downloads, Documentation, Community, Success Stories, News, and Events. Below the navigation bar, a large yellow button with the text "Download Python 3.8.0" is prominently displayed. To the left of the button, text says "Looking for Python with a different OS? Python for [Windows](#), [Linux/UNIX](#), [Mac OS X](#), [Other](#)". Below that, it says "Want to help test development versions of Python? [Prereleases](#), [Docker images](#)". At the bottom, it says "Looking for Python 2.7? See below for specific releases". On the right side of the page, there is a graphic of two cardboard boxes hanging from parachutes against a blue background with white clouds.



Python 3.8.0 (tags/v3.8.0:fa919fd, Oct 14 2019, 19:21:23) [MSC v.1916 32 bit (Intel)] on win32  
Type "help", "copyright", "credits" or "license" for more information.

>>>

# Prompt

File Edit Shell Debug Options Window Help

Python 3.8.0 (tags/v3.8.0:fa919fd, Oct 14 2019, 19:21:23) [MSC v.1916 32 bit (Intel)] on win32  
Type "help", "copyright", "credits" or "license()" for more information.

>>> |

Shell (IDLE)

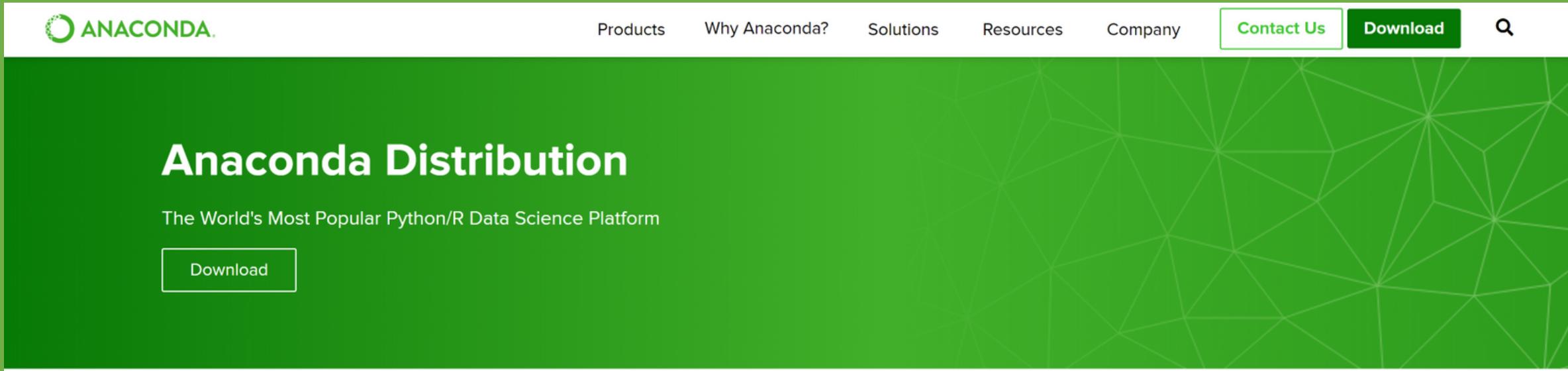


# Gli IDE di Python



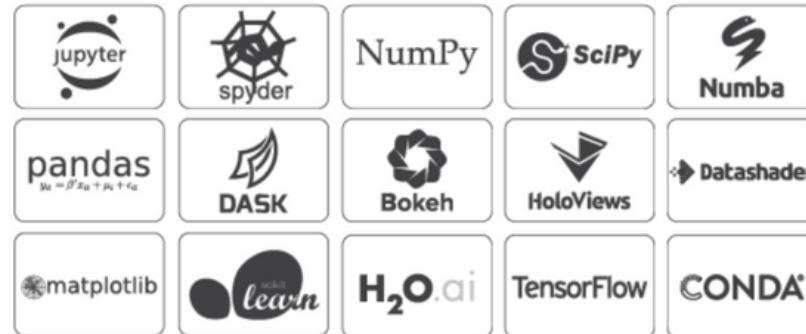
# Anaconda distribution

<https://www.anaconda.com/distribution/>

The image shows the Anaconda Distribution landing page. At the top, there is a navigation bar with links for Products, Why Anaconda?, Solutions, Resources, Company, Contact Us, Download, and a search icon. The main title "Anaconda Distribution" is prominently displayed in large white font. Below it, the subtitle "The World's Most Popular Python/R Data Science Platform" is shown. A large "Download" button is visible. The background features a green gradient with a subtle geometric pattern.

The open-source [Anaconda Distribution](#) is the easiest way to perform Python/R data science and machine learning on Linux, Windows, and Mac OS X. With over 15 million users worldwide, it is the industry standard for developing, testing, and training on a single machine, enabling *individual data scientists* to:

- Quickly download 1,500+ Python/R data science packages
- Manage libraries, dependencies, and environments with [Conda](#)
- Develop and train machine learning and deep learning models with [scikit-learn](#), [TensorFlow](#), and [Theano](#)
- Analyze data with scalability and performance with [Dask](#), [NumPy](#), [pandas](#)

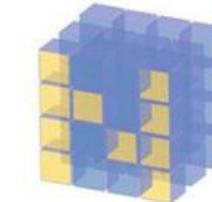


**CONDA**<sup>®</sup>



**SciPy**

**Pandas**



**NumPy**

 **matplotlib**



 **TensorFlow**







python

# Parte 2

# Il Linguaggio



```
        b){return this.each(function(){var  
=a(b);c.VERSION="3.3.7",c.TRANS  
|(d=b.attr("href"),d=d&&d.replace  
[target:b[0]]},g=a.Event("show.bs.  
te(b.closest("li"),c),this.activ  
et:e[0]}))}}},c.prototype.activ  
().find('[data-toggle="tab"]').a  
addClass("in"):b.removeClass("i  
ia-expanded",!0),e&&e()}var g=d.  
;th&&h?g.one("bsTransitionEnd",f  
structor=c,a.fn.tab.noConflict=  
ata-api',[data-toggle="tab"]',  
ach(function(){var d=a(this),e=d  
{this.options=a.extend({},c.DEP  
("click.bs.affix.data-api",a.pr  
position());c.VERSION="3.3.7",c  
rget.scrollTop(),f=this.$elemen  
!(e+this.unpin<=f.top)&&"bottom"  
ottom"},c.prototype.getPinnedOf  
target.scrollTop(),b=this.$ele  
proxy(this.checkPosition,this)  
top,f=d.bottom
```

# La Sintassi Vai a jupyter





# Funzioni, Moduli e Librerie

Funzioni

**Singole Istruzioni**

Moduli

**Insieme di funzioni associate  
progettate per svolgere compiti  
comuni.**

Librerie

**Insiemi di moduli.**

- [Libreria Standard si python](#)
- [Altre librerie](#)



# Le principali librerie di Python per la statistica

## Numpy

Numpy è una libreria di supporto al calcolo scientifico in Python che offre numerose strutture dati tra cui array e matrici multidimensionali.

## Pandas

Libreria per la gestione e l'analisi dei dati fondata su Numpy. Due sono le principali strutture dati presenti: Series e i DataFrame.

## Scipy

Contiene moduli per l'ottimizzazione, per l'algebra lineare, l'integrazione, l' elaborazione di segnali ed immagini e altri strumenti comuni nelle scienze e nell'ingegneria.

## matplotlib

Matplotlib è una libreria per la creazione di grafici per il linguaggio di programmazione Python e la libreria matematica NumPy.



# Statistica

## Vai a jupyter





# Principi guida di python: The Zen of python

- 1 Beautiful is better than ugly.
- 2 Explicit is better than implicit.
- 3 Simple is better than complex.
- 4 Complex is better than complicated.
- 5 Flat is better than nested.
- 6 ...

colab

Notebook in Google Drive Cloud



# Grazie



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[https://github.com/muschitiello/Uniba2019Tutorial\\_PythonBasics](https://github.com/muschitiello/Uniba2019Tutorial_PythonBasics)